

66. (Amended) A method of identifying a compound that associates with tumor necrosis factor- α -converting enzyme (TACE), comprising (A) using atomic coordinates that comprise the coordinates of Table 1 to design an associating compound that forms a bond with a catalytic domain of a TACE polypeptide, (B) synthesizing said compound, and (C) determining *in vitro* whether said compound associates with said catalytic domain.

Please add the following claims:

75. The method according to claim 66, wherein the associating compound is designed to associate with the S1' region of TNF- α -converting enzyme.

76. The method according to claim 66, wherein the associating compound is designed to associate with the S1'S3' pocket of TNF- α -converting enzyme.

77. The method according to claim 66, wherein the associating compound is designed to incorporate a moiety that chelates zinc.

78. The method according to claim 66, wherein the associating compound is designed to form a hydrogen bond with Leu348 or Gly349 of TNF- α -converting enzyme.

79. The method according to claim 66, wherein the associating compound is designed to introduce a non-polar group which occupies the S1' pocket of TNF- α -converting enzyme.

80. The method according to claim 66, wherein the associating compound is designed to introduce a group which lies within the channel joining S1' - S3' pockets of TNF- α -converting enzyme and which makes appropriate van der Waal contact with the channel.

81. The method according to claim 66, wherein the associating compound is designed to form a hydrogen bond with Leu348 or Gly349 on the backbone amide groups of TNF- α -converting enzyme.